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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,911	03/22/2004	Daniel L. Pfahlert	USPR-P001	3883

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EXAMINER	
HUNNINGS, TRAVIS R	
ART UNIT	**PAPER NUMBER**
2612	

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/806,911	PFAHLERT ET AL.	
	Examiner	Art Unit	
	Travis R. Hunnings	2632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 February 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 7-11, 15, 16, 18-20, 22, 25-27, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kissel (US Patent 5,744,932) in view of Hammond et al (Hammond; US Patent Application Publication 2002/0138775).

Regarding claim 1, Kissel discloses *Apparatus And Method For Monitoring Backup Battery Flow Charge* that has the following claimed limitations:

The claimed sensor for coupling to a battery string at a single point and for sensing a signal thereof is met by the AC current probe attached to the backup batteries as shown in figure 1;

The claimed logic circuit coupled to said sensor and for detecting a battery failure of said battery string and in response thereto said circuit for automatically generating a message over a communication network indicating said battery failure is met by the AC ammeter and the remote indicator as shown in figure 1, the ammeter detects failure of a part of the battery backup circuit through the ripple current and sends a signal

(communication network) to the logic circuit for indicating failure, the line between the ammeter and remote indicator would have been considered a communication network.

However, Kissel does not specifically disclose the claimed message describing the failure of the battery string. Hammond discloses *Power Supply Event Notification System* that teaches an electronic notification program that sends an electronic notification which includes information about the occurrence of a predetermined event such as a power supply failure (paragraphs 6 and 7). Modifying the device of Kissel to not only indicate the event but to also describe the event that occurred would give the user additional information that would be helpful in solving the problem. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Kissel according to the teachings of Hammond to describe the failure of the battery string in the message.

Regarding claim 7, the claimed logic circuit detecting battery failure in response to said sensor detecting an electrical signal of said battery string dropping below a prescribed threshold is met by the AC ripple current being measured having a low limit and a high limit and an alarm being activated when the AC ripple current is detected out of the bounds of those two limits (abstract).

Regarding claim 8, the claimed battery string being part of an un-interruptible power supply (UPS) circuit and wherein further said logic circuit is also for detecting failure in a rectifier of said UPS circuit is met by the device being used for a UPS system

(abstract) and detecting failure of the circuit which includes the AC to DC rectifier as shown in figure 1 (abstract).

Regarding claim 9, the claimed logic circuit detecting said rectifier failure in response to said sensor detecting an electrical signal of said battery string raising above a prescribed threshold is met by the AC ripple current being measured having a low limit and a high limit and an alarm being activated when the AC ripple current is detected out of the bounds of those two limits (abstract).

Regarding claim 10, Kissel discloses all of the claimed limitations except for the claimed message initiates generation of an electronic message (email) to a prescribed recipient and wherein said email describes said battery failure of said battery string. Hammond teaches notifying remote users of the system of a power supply failure event through email (paragraphs 7 and 15). Modifying the device of Kissel to include means to notify remote users through email that a potential problem has been detected would allow users to work remotely from the system and still be able to respond to problems quickly. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Kissel according to the teachings of Hammond to include email notifications of power supply problems.

Regarding claim 11, the claim is interpreted and rejected as claim 1 stated above.

Regarding claim 15, the claimed battery system being part of an un-interruptible power supply (UPS) circuit is met by the device being used for a UPS system (abstract). The claimed detecting rectifier failure in said UPS circuit wherein said logic circuit determines that said signal has exceeded a prescribed threshold is met by the AC ripple current being measured having a low limit and a high limit and an alarm being activated when the AC ripple current is detected out of the bounds of those two limits (abstract).

Regarding claim 16, Kissel discloses the claimed battery string comprising a plurality of batteries coupled in series is met by the backup batteries shown in figure 1.

The claimed sensor coupled at a single point of said battery string for sensing a ripple current thereof is met by the AC current probe as shown in figure 1 detecting the AC ripple current (abstract).

The claimed logic circuit coupled with said sensor for determining that said ripple current has dropped below a prescribed threshold and for automatically generating a message over a communication network in response to said determining is met by the AC ripple current being measured having a low limit and a high limit and a message being sent to the remote indicator (communication network) that an alarm should be activated because the AC ripple current is detected out of the bounds of those two limits (abstract) the line between the ammeter and remote indicator would have been considered a communication network.

However, Kissel does not specifically disclose the claimed message describing the failure of the battery string. Hammond discloses *Power Supply Event Notification System* that teaches an electronic notification program that sends an electronic notification which includes information about the occurrence of a predetermined event such as a power supply failure (paragraphs 6 and 7). Modifying the device of Kissel to not only indicate the event but to also describe the event that occurred would give the user additional information that would be helpful in solving the problem. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Kissel according to the teachings of Hammond to describe the failure of the battery string in the message.

Regarding claim 18, the claim is interpreted and rejected as claim 15 stated above.

Regarding claim 19, the claim is interpreted and rejected as claim 9 stated above.

Regarding claims 20, 27, and 33, the claims are interpreted and rejected as claim 10 stated above.

Regarding claim 22, the claim is interpreted and rejected as claim 16 stated above.

Regarding claim 25, the claim is interpreted and rejected as claim 7 stated above.

Regarding claim 26, the claim is interpreted and rejected as claim 15 stated above.

3. Claims 2-6, 12-14, 17, 21, 23, 24 and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kissel in view of Hammond and further in view of Simonsen (US Patent 5,047,961).

Regarding claim 2, Kissel discloses all of the claimed limitations except for the claimed sensor senses current of said battery string and further comprises a signal conditioning circuit coupled between said sensor and said logic circuit, said signal conditioning circuit for converting a current signal output from said sensor to a voltage signal supplied to said logic circuit. Simonsen discloses *Automatic Battery Monitoring System* that teaches an analog to digital converter that takes the analog current value from a sensor and converts it to a digital voltage value to be fed to a microprocessor (column 4, lines 30-42, 66-68 and column 5, lines 1-15). Adding a microprocessor and an associated analog to digital converter for conditioning the signal to be read by the microprocessor would give the device more functionality and allow the user to program the microprocessor to perform many different operations when a battery failure signal

was detected. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Kissel according to the teachings of Simonsen to include a signal conditioning device and a microprocessor to convert the analog current value to a digital voltage value in order for the microprocessor to process the signal.

Regarding claim 3, the claimed current of said battery string being a ripple current through said battery string at said single point is met by the AC ammeter being connected to the circuit as seen in figure 1 of Kissel and measuring AC ripple current (Kissel: abstract).

Regarding claim 4, Kissel discloses all of the claimed limitations except for the claimed sensor being a hall effect clamp-on sensor electro-magnetically coupled to said battery string. Simonsen teaches using a hall-effect sensor clamped on to a point of the battery string for detecting current (column 4, lines 30-42). Kissel doesn't disclose the particular type of sensor used in the AC ammeter and it would be easy for one of ordinary skill to use a hall-effect clamp on sensor as taught by Simonsen. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Kissel according to the teachings of Simonsen to use a hall-effect clamp on sensor to detect current.

Regarding claim 5, the claim is interpreted and rejected as claim 3 stated above.

Regarding claim 6, the claimed logic circuit detecting said battery failure in response to said sensor detecting a ripple current through said battery string dropping below a prescribed threshold is met by the AC ripple current being measured having a low limit and a high limit and an alarm being activated when the AC ripple current is detected out of the bounds of those two limits (abstract).

Regarding claims 12 and 21, the claims are interpreted and rejected as claim 2 stated above.

Regarding claims 13 and 29, the claims are interpreted and rejected as claim 5 stated above.

Regarding claims 14 and 31, the claims are interpreted and rejected as claim 6 stated above.

Regarding claims 17, 23, 24 and 30, the claims are interpreted and rejected as claim 4 stated above.

Regarding claim 32, the claim is interpreted and rejected as claim 9 stated above.

4. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kissel in view of Hammond and further in view of Dougherty et al. (Dougherty; US Patent Application Publication 2004/0189257).

Regarding claim 28, Kissel discloses the claimed sensing at a single point of said battery system a signal is met by the AC ammeter as shown in figure 1.

The claimed recording in a memory a threshold value indicative of said normal operating range is met by the device having pre-selected high and low level limit through selecting means that store the desired high and low level limits (column 5, lines 1-26).

The claimed determining that said signal exceeds said threshold value and automatically generating a failure message over a communication network in response thereto is met by the AC ammeter and the remote indicator as shown in figure 1, the ammeter detects failure of a part of the battery backup circuit through the ripple current and sends a signal (communication network) to the logic circuit for indicating failure when the AC ripple current is out of bounds of the upper or lower level limits (abstract), the line between the ammeter and remote indicator would have been considered a communication network.

However, Kissel does not specifically disclose the claimed message describing the failure of the battery string. Hammond discloses *Power Supply Event Notification System* that teaches an electronic notification program that sends an electronic notification which includes information about the occurrence of a predetermined event

such as a power supply failure (paragraphs 6 and 7). Modifying the device of Kissel to not only indicate the event but to also describe the event that occurred would give the user additional information that would be helpful in solving the problem. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Kissel according to the teachings of Hammond to describe the failure of the battery string in the message.

However, Kissel and Hammond still do not specifically disclose the claimed step of automatically determining a normal operating range of said signal over a period of time. Dougherty discloses *Battery Monitoring System And Method* that teaches determining the average voltage during a ripple interval over a predetermined period of time and storing that range for later comparison (paragraph 43). Modifying the device of Kissel and Hammond to automatically determine a range of normal values of operation as taught by Dougherty would allow the user to automatically set up the device to operate in a normal range and would make it easier to set up the system to determine when a fault occurs. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Kissel and Hammond according to the teachings of Dougherty to automatically determine a normal operating range of the signal over a period of time.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Travis R. Hunnings whose telephone number is (571) 272-3118. The examiner can normally be reached on 8:00 am - 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel J. Wu can be reached on (571) 272-2964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRH

Thomas J. Mullen, Jr.
Primary Examiner
Art Unit 2632

3-20-06